Title: COUNTERFEIT EYE DISCRIMINATION METHOD AND DEVICE, COUNTERFEIT EYE DISCRIMINATION PROGRAM, IRIS AUTHENTICATION METHOD, COUNTERFEIT PRINTED MATTER DISCRIMINATION METHOD AND IMAGE DISCRIMINATION METHOD

Inventor(s): Takeo AZUMA et al

Atty. Ref.: 5077-000237/NP

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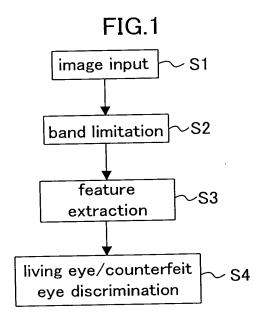
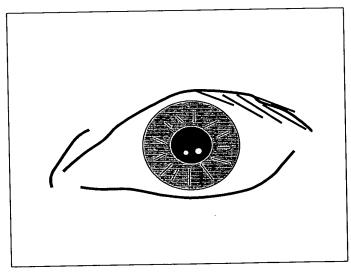


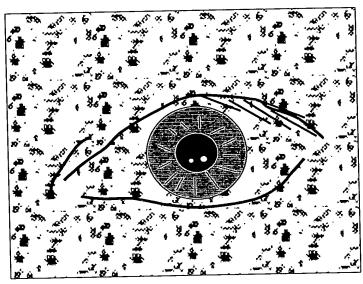
FIG.2



Living eye image

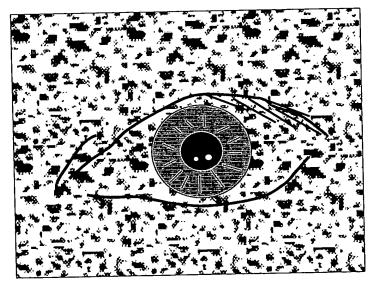
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FIG.3



Counterfeit eye image (paper-type 1)

FIG.4



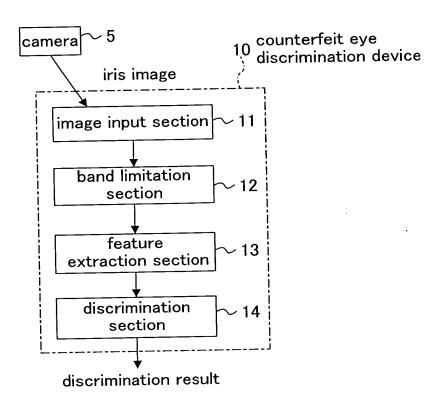
Counterfeit eye image (paper-type 2)

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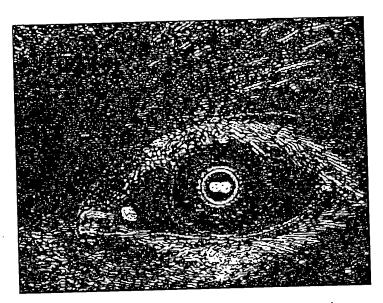
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FIG.5



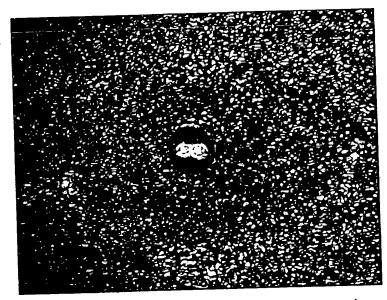
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FIG.6



Band-pass filtered output of living eye image

FIG.7



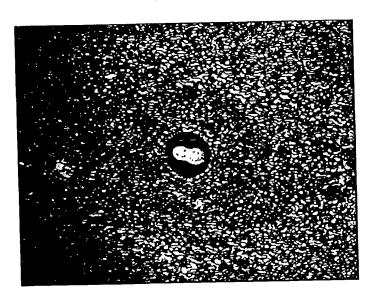
Band-pass filtered output of counterfeit eye image (paper-type 1)

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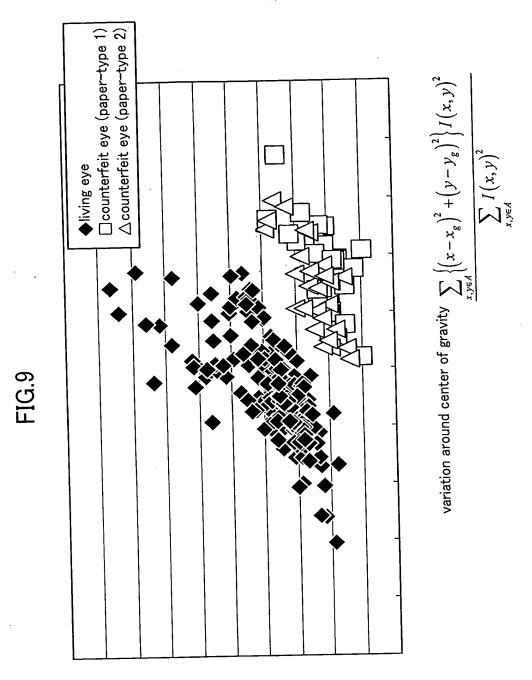
FIG.8



Band-pass filtered output of counterfeit eye image (paper-type 2)

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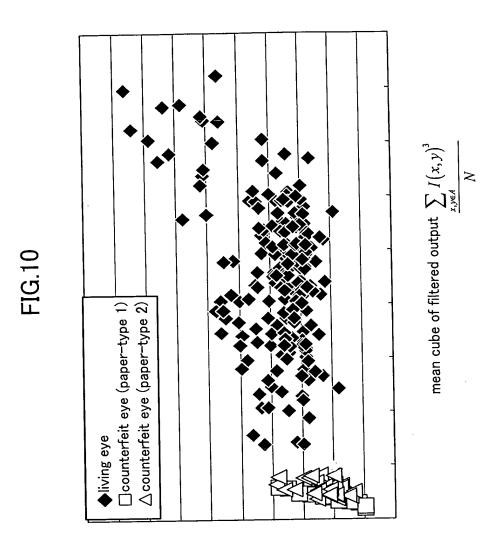
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variance of filtered output  $\sigma^2$ 

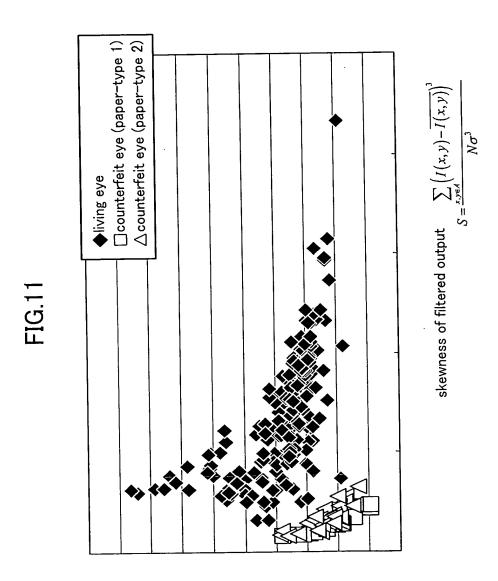
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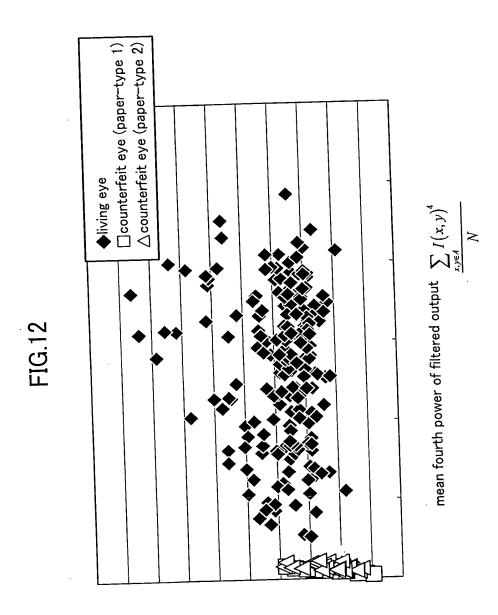
variance of filtered output  $\sigma^{\,2}$ 

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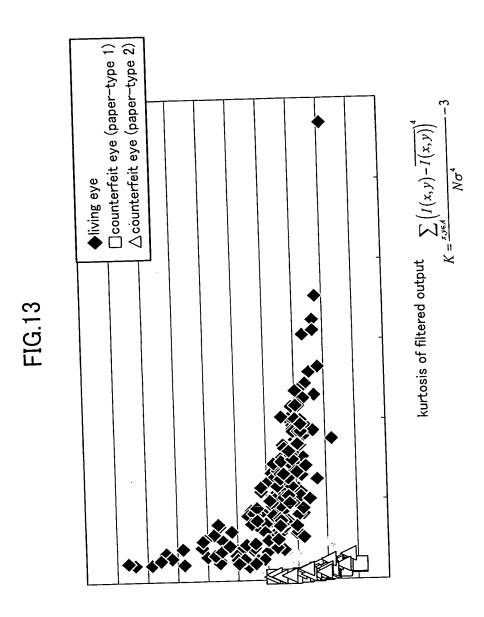
variance of filtered output  $\sigma^2$ 

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variance of filtered output  $\sigma^2$ 

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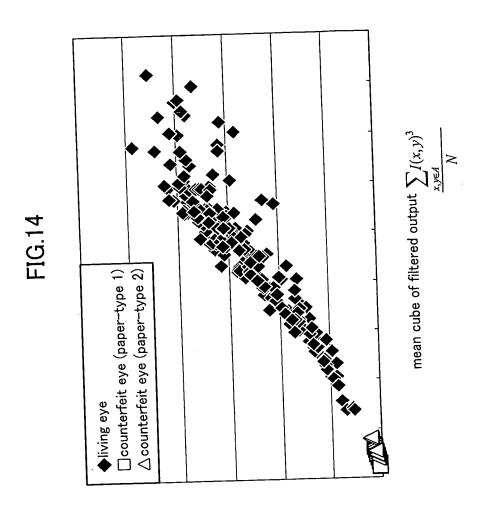


variance of filtered output  $\sigma^{\,2}$ 

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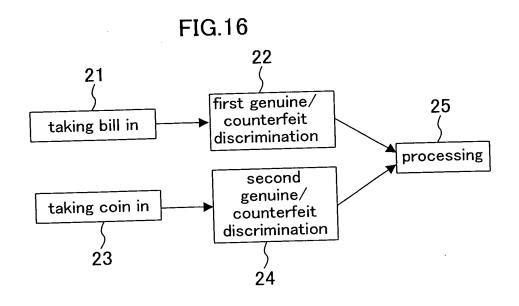


filtered output mean fourth power of  $\frac{N}{\sum_{\lambda \in \mathcal{A}_{x}} N(x, y)}$ 

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**FIG.15** - S11 image input - S12 iris authentication **S13** NO access rejection authentication OK? YES counterfeit eye discrimination **S15** access rejection living eye? YES access admission



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